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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,900	03/31/2004	Kalaga Murali Krishna	138768-1	9304

6147 7590 05/02/2005

GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
NISKAYUNA, NY 12309

EXAMINER
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KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/815,900

Applicant(s)

KRISHNA ET AL.

Examiner

C. Melissa Koslow

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-33, 35-37, 39, 40, 43-54, 58 and 59 is/are allowed.
- 6) ☒ Claim(s) 1, 7-14, 20-26, 34, 38, 41, 42, 55-57 and 60-65 is/are rejected.
- 7) ☒ Claim(s) 2-6 and 15-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/31/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter of claim 48 is not found in the specification and there is no clear teaching that the morphology can be combinations of the three taught shapes.

Claims 15-17 and 19 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 27-29 and 31. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 15-17 and 19 cover the same subject matter as claims 27-29 and 31 in that the processes in both sets of claims are the same, the composition in both sets of the claims are the same and the quantum efficiency ranges in claims 15-17 are the same as that in claims 27-29 and the absorption value range in claims 19 and 31 are the same.

Claims 41 and 42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

These claims state the step of forming a homogenized precursor solution (step b in claim 39) includes the steps of forming a lanthanide nitrate but paragraphs [0026]-[0027] and figure 5 teach this step occurs during the step of providing the precursor (step a in claim 39). This discrepancy between the claimed process and that in the specification and figures needs to be corrected.

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Claims 9, 13, 22, 26, 34, 38, 55-57 and 60-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9, 13, 22, 26, 34, 38 and 63 are indefinite due to the use of both "at least one" and "and combination thereof". They are indefinite because these two phrases have the same meaning in that they both imply that combinations of the listed compounds are encompassed by the claims. Claims 55 and 60 are indefinite with respect the use of "predetermined". Applicants are simply using this term to mean "determined beforehand" and thus it is unclear what is the actual temperature ranges. It is suggested to either insert the actual range or to indicate the purpose of the temperature. Claims 56 and 57 recite the limitation "said predetermined temperature". There is insufficient antecedent basis for this limitation in the claims or in claim 54 from which they ultimately depend. Claims 61 and 62 recite the limitation "said predetermined temperature". There is insufficient antecedent basis for this limitation in the claims or in claim 59 from which they ultimately depend. Claim 63 recites the limitation "said controlled atmosphere". There is insufficient antecedent basis for this limitation in the claim or in claim 59 from which it depends. Claims 64 and 65 recite the limitation "said period of time". There is insufficient antecedent basis for this limitation in the claims or in claim 59 from which they ultimately depend.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1, 7-10, 13, 14, 20-23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by the article by Riwotzki et al.

This article teaches luminescent lanthanum phosphate doped with cerium and terbium nanocrystals. The taught particles have a mean size of 5-6 nm, where the particles are spherical to ellipsoidal. While the process in the reference is different from that claimed, claims 14, 20-23 and 26 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The reference teaches the claimed nanomaterials.

Claims 1, 7-11, 13, 14, 20-24 and 26 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,580,490.

This reference teaches needle, or rod-like, shaped particles of  $\text{La}_x\text{Ce}_y\text{Tb}_{1-x-y}\text{PO}_4$ , where  $x$  is 0.4-0.6 and  $x+y$  is greater than 0.8. The particles have a length ranging from 50-200 nm and a width ranging from 10-50 nm. These dimensions fall within the claimed ranges. While the process in the reference is different from that claimed, claims 14, 20-23 and 26 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the

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prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The reference teaches the claimed nanomaterials.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,580,490.

This reference teaches needle, or rod-like, shaped particles of  $\text{La}_x\text{Ce}_y\text{Tb}_{1-x-y}\text{PO}_4$ , where  $x$  is 0.4-0.6 and  $x+y$  is greater than 0.8. The particles have a length ranging from 50-200 nm and a width ranging from 10-50 nm. These dimensions overlap the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). While the process in the reference is different from that claimed, claims 14, 20-23 and 26 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The reference suggests the claimed nanomaterials.

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Claims 27-33, 35-37, 39, 40, 43-54, 58 and 59 are allowable over the cited art of record.

Claims 2-6 and 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 34, 38, 41, 42, 55-57 and 60-65 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112 set forth in this Office action.

The claimed process for producing nanosized luminescent lanthanide doped lanthanide phosphates using a fuel and igniting the mixture of fuel, the phosphate source and the lanthanide precursors is not taught or suggested by the cited art of record. There is no teaching or suggestion of nanosized luminescent lanthanide doped lanthanide phosphates having the properties of claims 2-6 and 15-19.

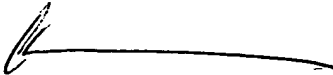
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
April 29, 2005



C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700